Claims

WHAT IS CLAIMED IS:

1. A method for producing a recombinant protein in an insect larvae expression system, the method comprising:

(a) infection of larvae with a vector that has a nucleic acid sequence that encodes a recombinant fusion protein with an affinity tag wherein the recombinant protein is expressed in the larvae; and

(b) purification of the recombinant protein from said larvae by affinity chromatography.

2. The method of claim 1 wherein the recombinant fusion protein is a membrane fusion protein.

3. The method of claim 1 wherein the affinity tag is selected from the group consisting of poly(His), avidin, biotin, antibody, streptavidin and an antigenic amino acid sequence.

4. The method of claim 3 wherein the affinity tag is poly(His).

5. The method of claim 1 wherein the vector is a baculovirus.

6. The method of claim 1 wherein the larvae are infected with the vector when the larvae are in the first, second, third, or fourth instar stage of development.

7. The method of claim 1 wherein the larvae are in the early fourth instar stage of development.

8. The method of claim 1 further comprising isolation of a protein fraction

from the larvae wherein the fraction contains the recombinant fusion protein with the affinity tag.

9. The method of claim 8 wherein the fraction is isolated from the larvae by differential and gradient centrifugation.

10. The method of claim 9 further comprising isolation of the fraction by chromatography performed after the step of differential and gradient centrifugation.

11. The method of claim 1 further comprising removal of the affinity tag from the recombinant fusion protein.

12. The method of claim 2 wherein the recombinant membrane fusion protein is selected from the class of proteins consisting of transport, channel forming, receptor, junctional, cytoskeletal, and other membrane associated proteins.

13. The method of claim 12 wherein the recombinant membrane protein is a transport protein.

14. The method of claim 13 wherein the transport protein is NCX1 or the Na-K ATPase.

15. The method of claim 12 wherein the recombinant membrane protein is a channel forming protein.

16. The method of claim 15 wherein the channel forming protein is CFTR.

17. The method of claim 12 wherein the recombinant membrane protein is a junctional protein.

18. The method of claim 17 wherein the junctional protein is conexin 32.

19. The method of claim 1 wherein the recombinant fusion protein has biological activity substantially the same as the native form of the protein.

20. The method of claim 1 wherein the recombinant fusion protein has substantially the same structure as the native form of the protein.

21. A method for identifying the physical characteristics of a recombinant fusion protein wherein the protein is produced by the method of claim 1.

22. The method of claim 21 wherein the physical characteristics are determined by a procedure selected from the group consisting of crystallography, NMR, and CD

23. The method of claim 22 wherein the procedure is crystallography.